WINTER 1982

TEXAS INSTRUMENTS HOME COMPUTER NEWSLETTER

PUBLISHED FOR TI COMPUTER ADVANTAGE CLUB MEMBERS AND TI 99/4A USERS

USERS' GROUP

EXPANSION

COURSE OFFERINGS

CONSUMER SOFTWARE LINE

GIFT CERTIFICATES

STARTING A USERS' GROUP

Users' Groups provide numerous benefits to novice and experienced users.

When groups pool the experience and resources of all members, everyone learns and benefits.

Most groups introduce new products purchased by members, share user-written software,teach programming, sponsor speakers and publish newsletters.

Typically, groups are started by a few interested individuals who are dedicated to establishing a network of knowledge. In fact, several groups have started with only one person. A well-organized and persistent group generally grows quickly.

Some groups start and stay small. The size of your group depends on your club goals. Well-rounded, dynamic groups, regardless of size, tend to attract interested non-users, educators and dealer support.

The following suggestions are offered to help TI-99/4A owners interested in starting a Users' Group:

1. Locate at least two or three other people who want to start a group.

2. Write to Texas Instruments and request a Users' Group Start-Up Kit. Send your request to:

Texas Instruments Incorporated
Users' Group Coordinator
P. O. Box 10508, MS 5890
Lubbock, Texas 79408

The Kit will give you detailed guidelines for organization, recruitment and meeting structure.

3. During your second or third meeting, elect officers and appoint a committee to write a constitution.

4. Once you have officers and a constitution, Texas Instruments can mail one meeting notice to TI-99/4A owners in your area, free of charge. To take advantage of this service, you must send the meeting date, time and place to the Users' Group Coordinator at least four weeks in advance of the meeting.

5. Continuing club activities require the participation of all members. Divide jobs equally among members so that primary responsibilities are shared:

a) Meeting Plans—activities, speakers, notices.

b) Newsletter—editing, reproduction, mailing.

c) Liasion—communication with other Texas Instruments' clubs.

d) Bookkeeping—financial status and planning, dues.

e) Membership—publicity, information.

f) Software Library—policies, editing, distribution.

6. Meet at a regular time and place. Groups should meet at least once a month. People outside of your group will learn of your meeting schedule and plan to attend. Irregular meetings are the surest way to kill a growing club.

7. Establish a regular meeting place. The area should be large enough to accomodate a growing club. Groups should establish one meeting place and continue to meet at one place to avoid confusion.

8. Offer activities of interest to all members. Smaller, special interest groups may want to meet separately, in addition to the regular group meetings. You also may want to plan special activities such as computer fairs or game nights.

9. Distribute a monthly newsletter. Newsletters are a good way to exchange programs and ideas, and also are excellent publicity for your club. Articles should be written for all levels of computer knowledge. The newsletter should arrive a week prior to the regular meeting and contain a monthly club calendar.

10. Maintain a club library. The library will be an important resource for all members. Purchase books and magazines from club dues and regularly demonstrate and critique library programs, books and articles.

11. Establish communications with other Users' Groups and microcomputer groups. Exchange newsletters and make regular reports on other group activities. Computer services such as TEXNET[SM] provide your club with another information source.

12. Establish regular dues. If you plan to have regular group activities and provide worthwhile services, dues should be charged. Dues can be used to buy library materials, publish newsletters and even buy and maintain a club computer. Dues should be affordable—$10 to $20 is the normal range.

NEW USERS' GROUPS STARTED

More than 45 Users' Groups now exist in the United States and foreign countries.

Two new groups recently were added to the roster.

Spanish programs should become more readily available now that a group has been formed in Colombia. For more information write:

Asociacion Colombiana
de Usuarios 99/4A
Av. Nutivara #C 3-6
Medellin Colombia S.A.

A new group has been formed in Minnesota. For information about meeting dates, time, and place, write:

Greater Minneapolis-St. Paul
Home Computer Users' Group
P. O. Box 12351
St. Paul, MN 55112

You can obtain the names and addresses of local Users' Groups from TI-99/4A retailers and Product Support Representatives, or by writing to:

Texas Instruments Incorporated
Users' Group Coordinator
P. O. Box 10508, MS 5890
Lubbock, Texas 79408

The Texas Instruments Home Computer Newsletter story suggestions and comments may be sent to:

Texas Instruments, Inc.
P. O. Box 10508, MS 5882
Lubbock, Texas 79408
Attn: Tami Cantua Morris, Editor

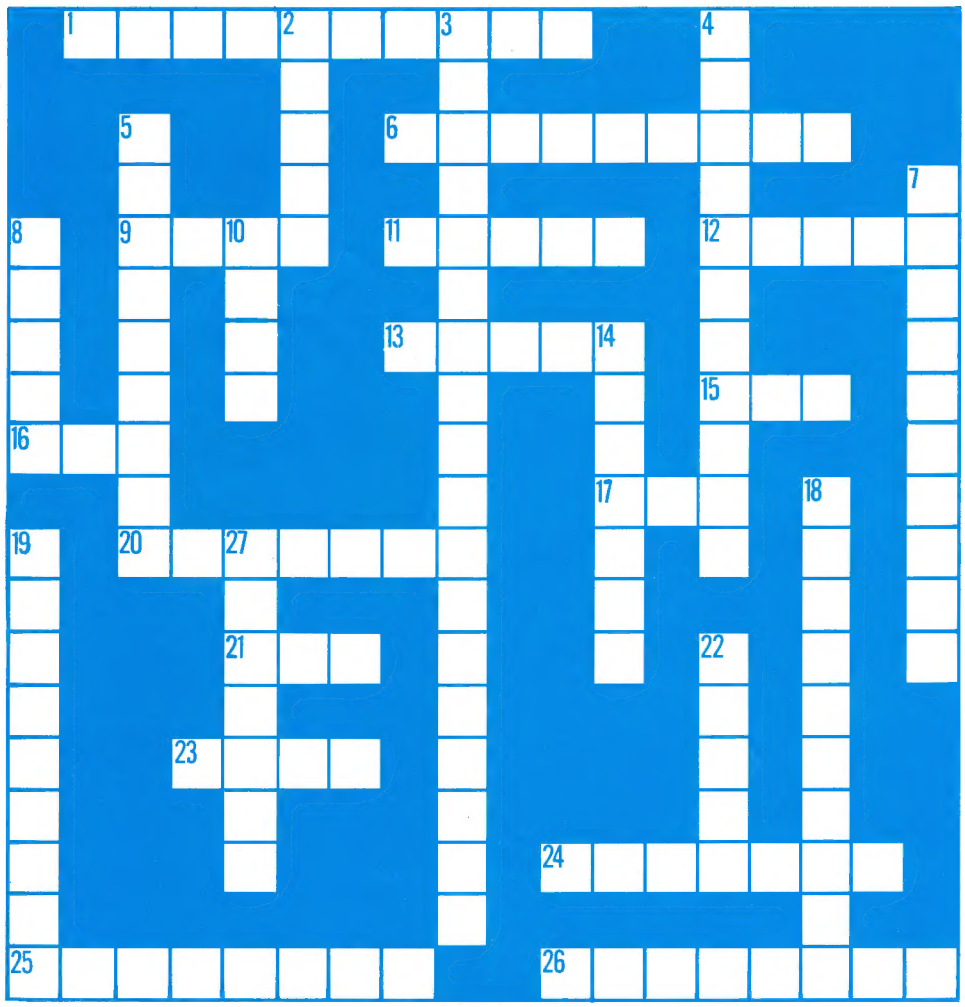
CROSSWORD PUZZLE

ACROSS

1. Addition to System
6. Translator which makes two different peripherals compatible
9. Children's language
11. Monster who chases Munchman
12. Sometimes causes input error
13. Language built into TI-99/4A
15. Command to process program
16. Command to leave program
17. Mathematical term
20. Program documentation within actual program
21. Command to automatically number each line
23. Terminates program execution
24. Process of correction
25. A danger when trying to find the Wumpus
26. The first aliens to attack in the game PARSEC

DOWN

2. New Educational Software
3. Temporary space
4. Number 1 of color code
5. Command to make objects disappear on screen
7. Cassette Access
8. Command to transfer control to a different routine
14. Basic computer unit
18. Command to change line numbers
19. Inexpensive storage
22. Command that gives hard copy
27. Type of screen



Answers on page 5.

TICAC EXPANSION PLANNED FOR 1983

TI's Computer Advantage Club officials plan to offer classes in the top 100 U.S. markets by June 1983.

Currently, the classes are offered in the 29 largest U.S. metropolitan areas.

By late March 1983, classes are expected to be taught in Newark, Cincinnati, Milwaukee, Kansas City, San Jose, Portland, New Orleans, Indianapolis, Columbus, San Antonio, Hartford, Sacramento, Rochester, Memphis, Nashville, Louisville, Providence, Austin, Salt Lake City, Greensboro, Raleigh, Winston-Salem, Oklahoma City, Dayton, and Norfolk.

By mid-1983, club officials expect to have teachers in Albany, Honolulu, Jacksonville, Akron, Charlotte, Richmond, Syracuse, Tucson, Gary, Little Rock, Albuquerque, Johnson City, Las Vegas, Baton Rouge, Allentown, Columbia, Mobile, Knoxville, Tacoma, Fresno and Omaha.

JANUARY COURSE OFFERINGS

Five TI Computer Advantage Club Courses will be offered in 29 major metropolitan areas beginning Jan. 17, 1983.

All courses consist of 10 hours of instruction and will be taught in four 2½ hour sessions. Actual computer time is included with all courses at no extra charge.

Tuition for the three children's classes is $65 a course. Tuition for the two adult courses is $75 each.

If two family members register for courses **at the same time**, a $10 discount will be given to every family member who registers after the first member.

January Course Offerings

The **Children's Computer Awareness Program** is for 8-to 15-year-olds who have little or no knowledge of computers. Students learn to run and write sho-* programs implementing several useful BASIC commands, practice in the TI LOGO Turtle and Sprite modes and learn computer parts and terminology.

Programming Discovery in TI BASIC is a beginning programming course for 8-to 15-year-olds. The awareness program is recommended as a prerequisite, but is not required. Instruction incorporates music, graphics, color, speech, sound and problem solving.

Programming Discovery in TI LOGO is for 8-to 15-year-olds. The Awareness Program is recommended as a prerequisite, but is not required. Students learn to save and recall TI LOGO procedures. Course concentration is on the Sprite and Turtle graphics modes and developing geometric, math and logic skills.

The **Adult Computer Awareness Program** is a general introduction to computer terminology, parts, software, storage methods and basic programming principles.

Instruction in the **BASIC Programming for Adults** course focuses on TI BASIC commands and statements, graphics, problem solving, flow charting and practical applications programs.

January courses will be offered in Atlanta, Baltimore, Birmingham, Boston, Chicago, Cleveland, Dallas, Denver, Detroit, Houston, Long Island, Los Angeles, Lubbock, Miami, Minneapolis, New Jersey, New York City, Orlando, Philadelphia, Phoenix, Pittsburgh, San Francisco, San Diego, St. Louis, Seattle, Tampa, Washington D.C., Kansas City and Buffalo.

CONSUMER SOFTWARE LINE OPENS

Consumers unable to purchase software from local dealers, can now purchase TI- 99/4A Software directly from Texas Instruments, at suggested retail price.

Toll-free operators are on duty from 8:00 a.m. to 5:15 p.m. Monday through Thursday, and from 8:00 a.m. to 3:15 p.m. on Friday. The toll-free number is 1-800-858-4075.

Delivery time is four to six weeks. Applicable state and local tax will be charged.

Consumers also can purchase software at suggested retail price from local Texas Instruments Exchange Centers. Consumers can save time by purchasing from the Exchange Centers, instead of ordering from Texas Instruments, when software is not available locally.

THIRD PARTY SOFTWARE DIRECTORY

A large portion of TI-99/4A software is produced by "third party" developers, or producers not employed by Texas Instruments.

As new dealers produce software for Texas Instruments, updates will be listed.

For more information on a particular dealer, write to the address listed.

Legend

The codes indicate the major types of software available from each producer.

HP - Home Finance/Personal Enrichment
E - Entertainment
ED - Educational
C - Computer Literacy
O - Other

E
American Software Design and Distributing Company
P. O. Box 46
Cottage Grove, Minnesota 55016

HP
ED
Anthistle Systems, Ltd.
563 Patricia Drive
Oakville, Ont., Canada L6K 1M4

HP
Charles Moreale
105 Meadowbrook
Venetia, Pennsylvania 15367

E
Chase Company
C/O Christian Software Co.
P. O. Box 1429
Bethany, Oklahoma 73008

ED
Computer-Ed, Inc.
C/O Microcomputers Corp.
34 Maple Avenue
P. O. Box 8
Armonk, New York 10504

E
Creative Computing
P. O. Box 789-M
Morristown, New Jersey 07960

E
Data Force, Inc.
10 S. 312 Hampshire Lane East
Hinsdale, Illinois 60521

HP
ED
Data Systems
2214 W. Iowa
Chicago, Illinois 60622

HP
Denali Data Design
1413 N. McKinley Avenue
Oklahoma City, Oklahoma 73106

HP
C
Denver Software Company
14100 E. Jewell Avenue, Suite 15
Aurora, Colorado 80012

ED
E
HP
Eastbench Software
1290 Cliffside Drive
Logan, Utah 84321

ED
C
Educaitor, Inc.
38 Main Street
Hudson, Massachusetts 07149

E
C
Extended Software Company
11987 Cedarcreek Drive
Cincinatti, Ohio 45240

E
Fantasy Computing
1586 S. Citrus
Escondido, California 92027

E
FFF Software
P. O. Box 4169
Trenton, New Jersey 08610

HP
E
Futura Software
P. O. Box 5581
Ft. Worth, Texas 76108

HOTLINE DIRECTORY

Third Party Software Directory

E
Galactic Software
P. O. Box 99345
Cleveland, Ohio 44199

ED
E
Hall Software
P. O. Box 1736
Anderson, Indiana 46014

E
Image Producers
615 Academy Drive
Northbrook, Illinois 60062

E
ED
Instant Software
Route 101
Peterborough, NH 03458

E
ED
HP
C
International 99/4A User's Group, Inc.
P. O. Box 67
Bethany, Oklahoma 73008

E
Intersoft
5407 Salem Hill
Austin, Texas 78745

O
J&K H Software
2820 S. Abingdon St.
Arlington, Virginia 22206

HP
Joe D. Fain
209 Presbytere Parkway
Lafayette, Louisiana 70503

E
Kemp Software
TI Software Group
329 Mission Boulevard
San Diego, California 92109

ED
Micro-Ed, Inc.
P. O. Box 24156
Minneapolis, Minnesota 55424

HP
E
ED
C
Microcomputers Corporation
34 Maple Avenue
P. O. Box 8
Armonk, New York 10504

E
Miller Graphics
1475 W. Cypress Avenue
San Dimas, California 91773

E
Norton Software
P. O. Box 575
Picton, Ont., Canada KOK 2TO

E
Not-Polyoptics
13571 Lynn Street
Woodbridge, Virginia 22191

E
C
Oak Street Systems
3922 Valentine Road
Whitmore Lake, Michigan 48189

HP
P.M. Systems & Services
4037 Johnson Drive
Oceanside, California 92056

HP
Pablo Diablo
P. O. Box 4863
Santa Clara, California 95054

E
Patio Pacific, Inc.
24433 Hawthorne Boulevard
Torrance, California 90505

E
Pewterware
C/O Christian Software Co.
P. O. Box 1429
Bethany, Oklahoma 73008

HP
Professional Microware
Attn: E.D. Schwartz, M.D.
Suite 703, 735 St. Johns Avenue
Highland Park, Illinois 60035

ED
E
Program Design, Inc.
11 Idar Court
Greenwich, Connecticut 06830

E
Prometheus Software
413 Lowell Lane
Richardson, Texas 75080

HP
E
PRP Computergraphics
901 Cherrydale Street
Lake Charles, Louisiana 70605

E
PS Software Company and Starsaber Software Company
P. O. Box 541
Belleville, Illinois 62222

HP
RCL Computers
359 Washington Avenue
P. O. Box 2224
Oakmont, Pennsylvania 15139

C
RMI Media Productions, Inc.
120 W. 72nd Street
Kansas City, Missouri 64114

HP
ED
Scott, Foresman & Company
1900 E. Lake Avenue
Glenview, Illinois 60025

E
Simul-Tech
35717 Grandview Court
Framington Hills, MI 48018

E
Simulsoft
Box 3494
Scottsdale, Arizona 85257

HP
C
Soft-Sell
P. O. Box 2403
Del Mar, California 92014

E
Software Exchange
P. O. Box 97
North Chili, New York 14514

E
Sunshine Software
520 Milton Lane
Hoffman Estates, Illinois 60194

HP
Technical Advancement Assoc.
P. O. Box 16473
St. Louis, Missouri 63125

ED
E
HP
The Micro House
1406 E. Wisconsin Avenue
Appleton, Wisconsin 54911

ED
HP
W. R. Wilson, Inc.
928 Apple Street
Greenfield, Indiana 46140

ED
E
HP
99'Er Magazine™
P. O. Box 5537
Eugene, Oregon 97405

CONSUMER HOTLINE

The Consumer Hotline is open from 8:00 a.m. to 6:15 p.m. Monday through Thursday and from 8:00 a.m. to 3:15 p.m. on Friday. The national number is 1-800-858-4565.

CONSUMER SOFTWARE LINE

Consumers unable to purchase software from local dealers can order software from TI by calling 1-800-858-4075 from 8:00 a.m. to 5:15 p.m. Monday through Thursday and from 8:00 a.m. to 3:15 p.m. on Friday.

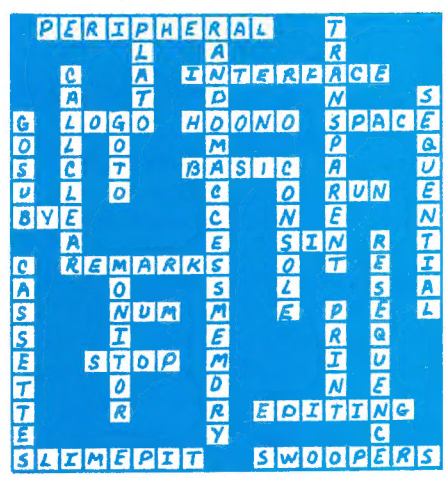
CONSUMER TECHNICAL LINE

Home Computer users can call the technical line for questions about programming and applications. The line is open from 8:00 a.m. to 4:30 p.m. Monday through Thursday and until 3:15 p.m. on Friday. The direct number is 1-800-741-2663.

TI COMPUTER ADVANTAGE CLUB

Consumers can call the TICAC line for class information and to register for classes. The lines are open from 8:00 a.m. to 8:30 p.m. Monday through Friday and from Noon to 4:30 p.m. Saturday and Sunday. The national number is 1-800-858-4069. Texas residents should call 1-800-692-1318. **All Hours are Central Standard Time.**

Puzzle Answers



PROGRAMMING MUSIC IN TI BASIC

Programming music on the TI-99/4A with the **CALL SOUND** command can produce delightful results.

To get started, you'll need to know how to read notes and their lengths, have a copy of the music you want to reproduce and locate the musical tone frequencies chart on page III-7 of the "User's Reference Guide."

The **CALL SOUND** command line consists of Duration (length of the note), Frequency (numerical equivalent of the note) and Volume (loudness or softness of the note);

100 CALL SOUND (Duration, Frequency, Volume)

If you wanted to program more than one tone at the same time, the line would look like this:

100 CALL SOUND (Duration, Frequency, Volume, Frequency2,Volume2, Frequency3,Volume3)

Whenever you program two or more notes together, the duration remains the same and is listed only once in the line.

The duration of a note depends on the time signature of the music. The signature tells you how many beats are in each measure and is indicated at the beginning of the music. For your first program, you may want to start with music written in a 4/4 signature (four beats to the measure).

To determine the duration, first choose the length of each measure. For example, if you choose 960 (a fast tempo) as the length of each measure, a quarter note would be 240 (¼ of 960), a half note would be 480 (½ of 960) and a dotted half note would be 720 (¾ of 960).

The frequency is the actual note. Frequencies for notes are listed in the "User's Reference Guide." The frequency for middle C, for example, is 262. The frequency for high C is 523.

Volumes range from 0 (loudest) to 10 (most quiet).

If you programmed a line to play middle and high C together as half notes at a fairly loud volume, the line would look like this:

100 CALL SOUND (480,262,1,523,1)

A program for "Deck the Halls" follows. Remember, you can make the music play faster or slower by changing the duration of each measure and of each note.

```
100 CALL SOUND (360,523,1,440,1)
200 CALL SOUND (120,466,1,392,1)
300 CALL SOUND (240,440,1,349,1)
400 CALL SOUND (240,392,1,330,1)
500 CALL SOUND (240,349,1,294,1)
600 CALL SOUND (240,392,1,330,1)
700 CALL SOUND (240,440,1,349,1)
800 CALL SOUND (240,349,1,262,1)
900 CALL SOUND (120,392,1,330,1)
1000 CALL SOUND (120,440,1,349,1)
1100 CALL SOUND (120,466,1,392,1)
1200 CALL SOUND (120,392,1,330,1)
1300 CALL SOUND (360,440,1,349,1)
1400 CALL SOUND (120,392,1,294,1)
1500 CALL SOUND (240,349,1,262,1)
1600 CALL SOUND (240,330,1,262,1)
1700 CALL SOUND (480,349,1,262,1)
1800 CALL SOUND (360,523,1,440,1)
1900 CALL SOUND (120,466,1,392,1)
2000 CALL SOUND (240,440,1,349,1)
2100 CALL SOUND (240,392,1,330,1)
2200 CALL SOUND (240,349,1,294,1)
2300 CALL SOUND (240,392,1,330,1)
2400 CALL SOUND (240,440,1,349,1)
2500 CALL SOUND (240,349,1,262,1)
2600 CALL SOUND (120,392,1,330,1)
2700 CALL SOUND (120,440,1,349,1)
2800 CALL SOUND (120,466,1,392,1)
2900 CALL SOUND (120,392,1,330,1)
3000 CALL SOUND (360,440,1,349,1)
3100 CALL SOUND (120,392,1,294,1)
3200 CALL SOUND (240,349,1,262,1)
3300 CALL SOUND (240,330,1,262,1)
3400 CALL SOUND (480,349,1,262,1)
3500 CALL SOUND (360,392,1,330,1)
3600 CALL SOUND (120,440,1,349,1)
3700 CALL SOUND (240,466,1,392,1)
3800 CALL SOUND (240,392,1,330,1)
3900 CALL SOUND (360,440,1,349,1)
4000 CALL SOUND (120,466,1,392,1)
4100 CALL SOUND (240,523,1,440,1)
4200 CALL SOUND (240,392,1)
4300 CALL SOUND (120,440,1,349,1)
4400 CALL SOUND (120,494,1,392,1)
4500 CALL SOUND (240,523,1,392,1)
4600 CALL SOUND (120,587,1,392,1)
4700 CALL SOUND (120,659,1,392,1)
4800 CALL SOUND (240,698,1,440,1)
4900 CALL SOUND (240,659,1,392,1)
5000 CALL SOUND (240,587,1,349,1)
5100 CALL SOUND (480,523,1,330,1)
5200 CALL SOUND (360,523,1,440,1)
5300 CALL SOUND (120,466,1,392,1)
5400 CALL SOUND (240,440,1,349,1)
5500 CALL SOUND (240,392,1,330,1)
5600 CALL SOUND (240,349,1,294,1)
5700 CALL SOUND (240,392,1,330,1)
5800 CALL SOUND (240,440,1,349,1)
5900 CALL SOUND (240,349,1,262,1)
6000 CALL SOUND (120,587,1,349,1)
6100 CALL SOUND (120,587,1,349,1)
6200 CALL SOUND (120,587,1,349,1)
6300 CALL SOUND (120,587,1,349,1)
6400 CALL SOUND (360,523,1,330,1)
6500 CALL SOUND (120,466,1,392,1)
6600 CALL SOUND (240,440,1,349,1)
6700 CALL SOUND (240,392,1,330,1)
6800 CALL SOUND (480,349,1,294,1)
6900 END
```

PRODUCT CONFIG

R = Required
O = Optional

FUNCTION	CONSOLE ADAPTER/MONITOR	CASSETTE PLAYER/CABLES	JOYSTICKS	SPEECH SYNTHESIZER	EXTE TE II
CASSETTE STORAGE/RETRIEVAL	R	R			
DATA BASE ACCESS	R			O	R
DISK STORAGE/RETRIEVAL	R				
GRAPHICS (TI BASIC)	R				
MUSIC	R				
SPEECH	R			R	O
PRINTING	R				
LANGUAGES	**C**	**C**	**J**	**SS**	**TE**
ASSEMBLY (EDITOR/ASSEMBLER)	R				
ASSEMBLY (Mini Memory)	R	R			
UCSD PASCAL™‡	R	O		O	
TI-PILOT	R			O	
TI-BASIC	R	O		O	
TI-EXTENDED BASIC	R	O		O	
TI-LOGO	R	O			
SOLID STATE SOFTWARE™	**C**	**C**	**J**	**SS**	**TE**
CASSETTE SOFTWARE	R	R			
DISK SOFTWARE	R				
EDUCATIONAL CARTRIDGES [1, 2]	R		O	O	
GAME CARTRIDGES[1]	R		O	O	
HOUSEHOLD BUDGET MANAGEMENT	R	O			
HOME FINANCIAL DECISIONS	R				
MICROSOFT™ MULTIPLAN (Spread Sheet)[3]	R				
PERSONAL REAL ESTATE	R	O			
PERSONAL RECORD KEEPING	R	O			
SECURITIES ANALYSIS	R				
TI-WRITER (WORD PROCESSING)[3]	R				

‡ Regents of the University of California

[1] A limited number may require use of cartridge and disk or cass

[2] Some require the Speech Synthesizer.

[3] Available first quarter 1983 (1Q83)

* The required items for speech are a synthesiz TE II or Speech Editor, a module with built-in

** Assembly Language also may be developed b Peripheral Expansion System, Disk Drive and Assembler/Linker Disks. You can run, but no

*** To **run** P-Code (PASCAL) Programs, the follo Memory Expansion Card, P-Code Card and h and Controller for disks, cassette player and To **write** P-Code programs, the following is r Expansion Card, P-Code Card, Disk Controlle and the P-System Editor/Filer/Utility and PAS

**** To **run** TI-PILOT lessons, the following is req Expansion Card, P-Code Card, Disk Controlle The same items are required to **write** TI-PILO also is required for writing lessons.

Stand-alone peripherals may be substituted for an Expansion System and one or more cards.

† TI-BASIC can be run with Memory Expansion

†† TI LOGO II (available late first quarter 1983) c TI LOGO can use only the TI Thermal Printe

URATION CHART

EXPANDED BASIC	PERIPHERAL EXPANSION SYSTEM	EXPANSION CARD MEMORY	INTERFACE CARD RS232	P-CODE CARD	DISK DRIVE CONTROLLER CARD	PRINTER	PHONE MODEM	SPECIAL CARTRIDGE	
		R		R		O	O	R	TEII
		R				R			Disk Manager
	O								Yes*
		R		R			R		
E	EB	PES	ME	232	P-C	D	P	PM	SC
	O	R	R	O		R	O		Yes**
		O	O						Yes**
		R	R	O	R	O	O		Yes***
		R	R	O	R	R	O		Yes****
		O	O	O		O	O		*†
	R	O	O	O		O	O		Yes
		R	R			O			Yes++
E	EB	PES	ME	232	P-C	D	P	PM	SC
		R				R			
									Yes
									Yes
		O		O		O	O		Yes
									Yes
		R	R	O		R	O		Yes
		O		O			O		Yes
		O		O		O	O		Yes
									Yes
		R	R	R		R	R		Yes

ette.

er and one of the following: Extended Basic, speech (Early Reading, for example) or PASCAL.

y using a P-Code Card, Memory Expansion Card, Controller and P-System Editor/Filer/Utility and t write Assembly Language from Extended Basic.

wing is required: Peripheral Expansion System, ardware appropriate for the software (Disk Drive cables for tape, nothing else for cartridge). equired: Peripheral Expansion System, Memory r, at least one Disk Drive (two drives are better) CAL Complier Disks.

uired: Peripheral Expansion System, Memory r, at least one Disk Drive and the TI-PILOT Disk. T lessons. The P-System Editor/Filer/Utility Disk

function which requires the Peripheral

only when the Mini-Memory Cartridge is used.

an use the RS-232 Interface Card and printer.

A TI LOGO CHRISTMAS

Daniel Sabath, an 11-year-old from Lubbock, Tex., designed and wrote the following Christmas program.

"I want to thank my LOGO teacher, Rebecca Powers, and my friend, Carey Wilson, for their help," says Daniel.

Thank you, Daniel, for sharing your holiday program!

Daniel also wrote a short story to go along with his procedure. You can read this to your friends as they watch the tree.

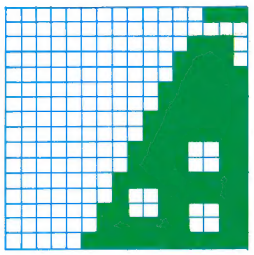
"You are walking on the night of Christmas Eve. You are lost. . . Snow is starting to fall. In the distance, you see a window. As you come closer, you see a Christmas tree with blinking lights . . . As you walk toward the tree, you discover you're no longer lost. You're at your friend's house!"

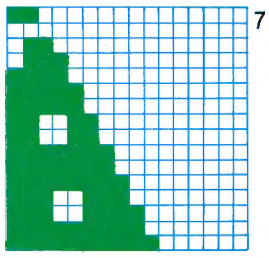
To do this procedure, you will need a TI LOGO Command Cartridge. You probably will want to save your procedure on cassette tape or disk.

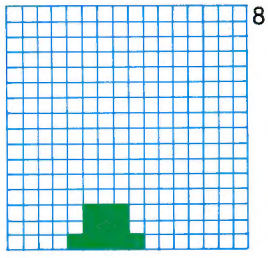
1. Make **MAKESHAPES 6, 7, 8, 9, 10** and **11**. You can make the tree bigger by using more makeshapes. Daniel used two makeshapes, one for each side of the tree. You could add two more to the bottom. If you make your tree bigger, remember to make your window bigger also.

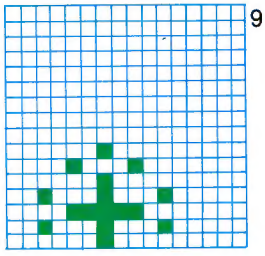
2. Then, type in:

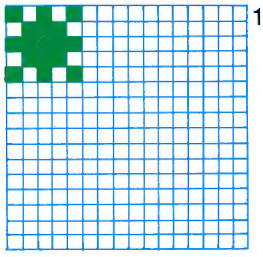
```
TO YULE
CB 1
WINDOW
SNOW
TREE
LIGHTS

TO WINDOW
TELL TURTLE
ST
HOME
SC 15
PU
BK 17
RT 90
PD
FD 30
LT 90
FD 30
LT 90
FD 60
REPEAT 4[LT 90 FD 30]
LT 90
FD 15
LT 90
FD 60
HT
END

TO SNOW
MAKE "N 8
10: TELL :N
CARRY 10
SC 15
SXY RANDOM * 40 - 120
  85 + RANDOM
SS :N * 2 SH 182
IF :N = 16 THEN STOP
MAKE "N :N + 1
GO "10
END

TO TREE
TELL 1
CARRY 6
SC 2
HOME
TELL 2
CARRY 7
SC 2
HOME
SH 90
FD 16
TELL 3
CARRY 8
SC 2
HOME
SH 0
FD 16
SH 90
FD 8
TELL 4
CARRY 9
SC 10
HOME
SH 0
FD 19
SH 90
FD 8
END
```

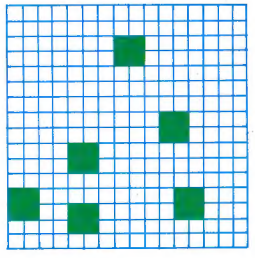












To see your tree, type in **TREE**. If you need to make changes, type in **EDIT TREE** and make your changes.

```
TO LIGHTS
TELL 5
CARRY 11
HOME
SH 90
FD 8
10: SC 6
WAIT 25
SC 2
WAIT 20
GO "10
END
```

To see your finished product, type in YULE and press TREE.

TICAC GIFT CERTIFICATES AVAILABLE

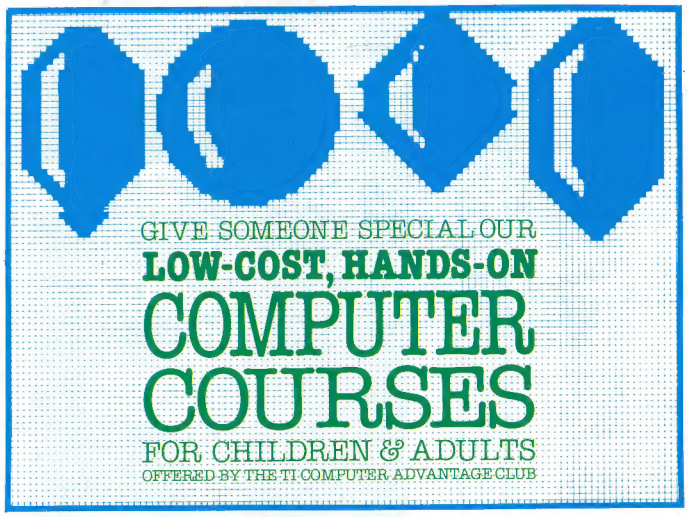
Christmas gift certificates good for one TI Computer Advantage Club course are now available from Texas Instruments.

The gift certificates are good for one full year. Recipients can call the TICAC toll-free line (1-800-858-4069, 1-800-692-1318 in Texas) and enroll in the session of their choice.

Courses currently are offered in 29 metropolitian areas (see **January Course Offerings**). Nearly 75 new locations are scheduled to be added by mid-1983 (see **TICAC Expansion Planned**), and certificates may be purchased for those areas. Certificates will be good for one full year from the time courses are first offered in those areas.

Enrollment in any TICAC course includes membership in the TI Computer Advantage Club. Club members receive a quarterly newsletter and membership card. New programs for club members are planned.

To purchase a gift certificate, call the TICAC toll-free line (1-800-858-4069, 1-800-692-1318 in Texas) and charge the certificate to MasterCard or VISA. An attractive gift certificate will be rushed to the purchaser, or directly to the receipient, if specified at the time of order.



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